CLAIMS

1. A method of marking a datagram (20, 22) transmitted in a communications network (100) comprising routers (4-9) interconnected by transmission links from a datagram source terminal (1) connected to a first router (4) of the network to a datagram destination terminal (10) connected to a second router (7) of the network, the datagram comprising a vector (FFIV) formed of ordered fields each containing a reference, the datagram further comprising a vector index field (FVI), and each router having a table of references, the method comprising the following steps executed when a router (5) receives the datagram:

· reading a value in the index field (FVI) of the datagram;

· reading the reference contained in the field of the vector (FFIV) of the datagram designated by the read index value;

· if the table of the router does not contain the read reference, writing a reference selected in the table of the router into the field of the vector of the datagram designated by the read index value;

· writing into the index field of the datagram a value equal to the read value incremented by one unit; and

· forwarding the datagram to a next router of the network.

2. A marking method according to claim 1, wherein the fields of the vector (FFIV) and the field of the index (FVI) are in the header of the datagram.

3. A marking method according to claim 1 or claim 2, wherein the references contained in the table of references of the router (5) are associated with respective routes in the network (100).

4. A marking method according to claim 3, wherein the table of references of the router (5) is a portion of a routing table of said router, said portion corresponding to a single destination prefix contained in the routing table.

5. A marking method according to any one of claims 1 to 4, wherein the datagram (22) belongs to a flow of datagrams sent successively by the source terminal (1) to the destination terminal (10), and wherein the read reference is identical to a reference written by said router (5) at the time of forwarding an earlier datagram of said flow (20).

6. A marking method according to claim 5, wherein the source terminal (1) writes an initial reference that does not correspond to any reference contained in the tables of references of the routers into each field of the vector (FFIV) of a first datagram of the flow (20).

7. A marking method according to any one of the preceding claims, wherein the datagram (22) belongs to a forward flow of datagrams sent successively by the source terminal (1) to the destination terminal (10), said forward flow relating to a communication session, and wherein said datagram (22) further comprises an additional vector (BFIV) formed of fields that are intended to receive references written into the fields of a vector (FFIV) of a backward flow datagram (21) relating to said communication session, sent by the terminal receiving forward flow datagrams (10) and received by the terminal sending forward flow datagrams (1) before sending said forward flow datagram (22).

8. A marking method according to claim 7, wherein the references written into the fields of the vector (FFIV) of the backward flow datagram (21) are stored with

communication session context data in one or both of the two terminals (1, 10).

9. A marking method according to claim 7 or claim 8, wherein the fields of the additional vector (BFIV) are in the header of said forward flow datagram (22).

10. A marking method according to any one of claims 7 to 9, wherein the initial references are written by the source terminal (1) into the fields of the vector (FFIV) of said forward flow datagram (22), said initial references being respectively identical to references contained in fields of an additional vector (BFIV) of the backward flow datagram (21).

11. A marking method according to claim 10, wherein the references written into the fields of the additional vector (BFIV) of the backward flow datagram (21) are stored with communication session context data in one or both of the two terminals (1, 10).

12. A marking method according to any one of claims 7 to 11, wherein said forward flow datagram (22) further comprises a vector length field (BVL) that is intended to receive the last value written into the index field (FVI) of the backward flow datagram (21).

13. A marking method according to claim 12, wherein the last value written into the index field (FVI) of the backward flow datagram (21) is stored with context data of the communication session in one or both of the two terminals (1, 10).

14. A marking method according to claim 12 or claim 13, wherein the vector length field (BVL) is in the header of said forward flow datagram (22).

15. A marking method according to any one of claims 12 to 14, wherein a value written into a vector length field (BVL) of the backward flow datagram (21) is stored with communication session context data in one or both of the two terminals (1, 10).

16. A method of forwarding a datagram (20, 22) by a router (5) of a communications network (100), the router having a table of references associated with respective routes between said router and a destination terminal of the datagram (10) connected to the network, the forwarding method comprising the following steps:

· on reception of the datagram by the router, reading a reference in the datagram; and

· looking up the read reference in the table of references of the router,

· if the table contains the read reference, forwarding the datagram along the route associated with the read reference,

· if not, selecting a reference in the table and forwarding the datagram along the route associated with the selected reference;

in which method the read reference was written beforehand into the datagram using a marking method according to any one of claims 1 to 15.

17. A forwarding method according to claim 16, wherein the reference selected in the table of references of the router is also written into said datagram (20, 22) using a marking method according to any one of claims 1 to 15.

18. A forwarding method according to claim 16 or claim 17, wherein the table of references is associated with a single destination prefix contained in a routing table of said router (5).

19. A forwarding method according to claim 18, comprising the following steps executed at the time of reception of the datagram by the router (5) before looking up the read reference in the table of references of said router:

· reading a destination address in the datagram; and

· selecting in the routing table of said router the longest destination prefix corresponding to the read destination address,

the table of references of said router in which the reference read in the datagram is then looked up being associated with the selected destination prefix.

20. A forwarding method according to any one of claims 16 to 19, wherein the table of references further comprises, for each reference of said table, a load value assigned to the route associated with said reference, and wherein the selected reference corresponds to a minimum load value of the routes associated with references contained in said table of references.

21. A terminal (1, 10) comprising:

· means (20-22) for producing a datagram to be sent by the terminal, the datagram comprising an ordered field vector (FFIV) and a vector index field (FVI);

· means for writing an initial reference into each field of the vector (FFIV) of the datagram to be sent by the terminal; and

· means for writing an initial value into the index field (FVI) of the datagram to be sent by the terminal.

22. A terminal according to claim 21, further comprising:

· means for reading second references in fields of an additional vector (BFIV) contained in a datagram (21) received by the terminal; and

· means for storing the second references with communication session context data of the received

datagram in a communication session context table of said terminal,

wherein the initial reference written into each field of the vector (FFIV) of the datagram to be sent by the terminal (21, 22) is one of said second references read in a field of the additional vector (BFIV) of the received datagram (20, 21) when the datagram to be sent belongs to the communication session of the received datagram.

23. A terminal according to claim 22, wherein the means (21, 22) for producing the datagram to be sent are such that the datagram to be sent further comprises an additional field vector (BFIV), the terminal further comprising:

· means for reading first references in fields of a vector (FFIV) contained in the received datagram (20, 21);

· means for storing said first references in the table of communication session contexts of said terminal with the communication session context data of the received datagram; and

· means for writing said first references into the fields of the additional vector (BFIV) of the datagram to be sent by the terminal (21, 22) when the datagram to be sent belongs to the communication session of the datagram received.

24. A terminal according to claim 23, wherein the means (21, 22) for producing the datagram to be sent are also such that the datagram to be sent further comprises a vector length field (BVL), the terminal further comprising:

· means for reading a value in a vector index field (FVI) contained in the received datagram (20, 21);

· means for storing the read index value with the communication session context data of the received

datagram in the communication session context table of said terminal; and

· means for writing the read index value into the vector length field (BVL) of the datagram to be sent by the terminal (21, 22) when the datagram to be sent belongs to the communication session of the datagram received.

25. A router (5) comprising:

· means for reading a value in a vector index field (FVI) of a datagram (20, 22) received by the router;

· means for reading a reference contained in a vector field (FFIV) of said datagram designated by the read index value;

· means for storing a table of references;

· means for associating references in the table with routes;

· means for looking up a read reference in the table of references of said router, adapted to command forwarding of said datagram along the route associated with the read reference if the table of references contains the read reference;

· means for selecting a reference in the table of references, adapted to be activated if the table of references does not contain the read reference and to command forwarding of said datagram along the route associated with the selected reference; and

· means for writing a value equal to the read value incremented by one unit into the index field of said datagram (FVI).

26. A router according to claim 25, further comprising means for writing the selected reference into the vector field (FFIV) of said datagram designated by the read index value.

27. A router according to claim 25 or claim 26, wherein the association means are included in means for calculating a routing table of said router, said calculation means belonging to a control unit of said router (5b).

28. A router according to claim 27, wherein the association means are further adapted to associate a table of references with a single destination prefix contained in the routing table of said router (5).

29. A router according to claim 28, wherein the table of references of said router comprises, for each reference in said table, a load value assigned to the route associated with said reference and the reference selection means are adapted to select the reference for which the route corresponds to a minimum load value.

30. A communications network comprising a router (5) according to any one of claims 25 to 29.